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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/882,096	06/15/2001	Brian E. Joseph	1474(TOUCHSTONE)	7698
48642	7590	09/22/2009	EXAMINER	
PHILIP D. LANE P.O. BOX 79318 CHARLOTTE, NC 28271-7063			VO, HAI	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 09/882,096	Applicant(s) JOSEPH ET AL.	
	Examiner Hai Vo	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 September 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-4, 8-14 and 17-22 is/are pending in the application.
- 4a) Of the above claim(s) 4 and 13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3, 8-12, 14, and 17-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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1. All of the art rejections have been withdrawn in view of the present amendment.

None of the applied references teach or suggest *substantially all of the continuous aluminum oxide fibers that are oriented substantially parallel to the longitudinal channels*. However, upon further consideration, new grounds of rejections are made in view of newly discovered reference to Donomoto et al. (US 4,450,207).

2. The obviousness-type double patenting rejections have been overcome in view of the terminal disclaimer filed on September 04, 2009.

Terminal Disclaimer

3. The terminal disclaimer filed on 09/04/2009 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of US Patent Application No. 11/000521, now US Patent No. 7,498,077 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2, 3, 8-12, 14 and 17-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chapman, Jr. (US 6,655,633) in view of Donomoto et al. (US 4,450,207). Chapman discloses a composite structure comprising a tubular core

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sandwich between two skin layers of fiber reinforced metal matrix composite (figures 1, 3 and 21D, column 10, lines 55-65, and column 11, lines 5-15, and 50-55). The tubular core has two planar surfaces and includes a plurality of continuous, parallel, longitudinal channels (figure 21D). The hollow passageways provide areas where high pressure hydraulic lines, control cables, electric lines may be routed (column 18, lines 64-67). This at least indicates that the width of the channels is in the range from a few millimeters up to several inches. The fibers are glass fibers, boron fibers and graphite fibers (column 11, lines 7-10). The tubular core and the skin layers are made from a fiber composite material wherein the composite material is a metal matrix composite and the fiber is a continuous fiber which is oriented substantially parallel to the longitudinal channels (column 10, lines 65-67; column 11, lines 1-5, 45-55). The skin layer is in the form of multiple plies wherein one ply of the skin layer has the fibers running parallel to the longitudinal axis of the composite structure (column 10, lines 60-67). One ply reads on Applicant's one layer of a composite stiffening material. Similarly, the fibers of that ply read on Applicant's all the continuous fibers which are oriented substantially parallel to the longitudinal channels. Chapman does not specifically disclose the continuous fibers of the skin layer formed from alumina fibers. Donomoto, however, teaches a fiber reinforced metal composite material having been used widely in aircraft wherein the fiber reinforcing material includes carbon fibers, alumina fibers, or a combination thereof (column 1, lines 1-5; column 4, lines 60-67). The matrix metal is

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aluminum (abstract). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use alumina fibers as a fiber reinforcing material for the skin layer because alumina fibers has superior mechanical strength in addition to good high temperature characteristics and durability. The examiner notes that Chapman does not teach that all of the continuous fibers in all the multiple layers of the skin material are oriented in only one direction. That differentiates the instant application from Chapman.

Chapman as modified by Donomoto does not specifically disclose the tubular core made from extrusion. However, it is a product-by-process limitation not as yet shown to produce a patentably distinct article. It is the examiner's position that the article of Chapman/Donomoto is identical to or only slightly different than the claimed article prepared by the method of the claim, because both articles are formed from the same materials, having structural similarity (see discussion in the paragraph above). Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or an obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985). The burden has been shifted to the applicant to show unobvious differences between the claimed product and the prior art product. *In re Marosi*, 218 USPQ 289,291 (Fed. Cir. 1983). It is noted that if the applicant intends to

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rely on Examples in the specification or in a submitted Declaration to show non-obviousness, the applicant should clearly state how the Examples of the present invention are commensurate in scope with the claims and how the Comparative Examples are commensurate in scope with the composite structure of Chapman as modified by Donomoto.

6. The art rejections based on Chapman have been maintained for the following reasons. Applicant contends that Chapman does not teach or suggest the width of the channels. That is not true. The hollow passageways provide areas where high pressure hydraulic lines, control cables, electric lines may be routed (column 18, lines 64-67). This at least indicates that the width of the channels is in the range from a few millimeters up to several inches so as to accommodate the high pressure hydraulic lines, control cables, and electric lines. In addition, the extruded tubular core is a product-by-process limitation which is not as yet shown to produce a patentably distinct article. It is the examiner's position that the article of Chapman/Donomoto is identical to or only slightly different than the claimed article prepared by the method of the claim, because both articles are formed from the same materials, having structural similarity (see discussion above). Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or an obvious from a product of the prior art, the claim is unpatentable even though the prior product

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was made by a different process. *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985). The burden has been shifted to the applicant to show unobvious differences between the claimed product and the prior art product. *In re Marosi*, 218 USPQ 289,291 (Fed. Cir. 1983). It is noted that if the applicant intends to rely on Examples in the specification or in a submitted Declaration to show non-obviousness, the applicant should clearly state how the Examples of the present invention are commensurate in scope with the claims and how the Comparative Examples are commensurate in scope with the composite structure of Chapman as modified by Donomoto.

7. Claims 2, 10, 11, 14, and 19-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones et al. (US 6,630,093) in view of Donomoto et al. (US 4,450,207). Jones teaches a composite material for use in aircraft structure comprising a metallic core material with a skin covering the core material (column 6, lines 57-65, column 4, lines 55-56). The core material comprises a micro multi-void core having two planar surfaces and including a plurality of continuous parallel, longitudinal channels, each extending in a direction parallel to the planar surfaces (figures 6 and 7). Jones discloses that the core with a solid internal structure is converted to the core with a non-solid internal structural pattern (column 14, lines 60-65). The non-solid structure is composed of trusses arranged in a tensegrity pattern (column 15, lines 35-40). Likewise, the core would have no seams, no joins between the voids. Additionally, Jones discloses the freeform-fabricated cores are virtually seamless (column 17, lines 1-10).

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Jones teaches the skin material made from a ceramic fiber reinforcing metal matrix composite material (column 5, lines 5-25). Jones does not specifically disclose the ceramic fibers which are made from continuous alumina fibers. Donomoto, however, teaches a fiber reinforced metal composite material having been used widely in aircraft wherein the fiber reinforcing material includes carbon fibers, alumina fibers or a combination thereof (column 1, lines 1-5; column 4, lines 60-67). The alumina fibers are oriented substantially parallel to the longitudinal axis of the structure (column 12, lines 45-50). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use continuous alumina fibers as a fiber reinforcing material for the skin layer wherein the alumina fibers are oriented substantially parallel to the longitudinal axis of the structure motivated by the desire to obtain a skin layer with superior bending strength and fatigue strength.

Jones discloses that the internal geometry patterns can be varied as dependent upon the desired flexibility, stiffness and shear strength of the composite articles with potentially much greater strength to weight ratios. Jones discloses the composite material found useful in aerospace applications. Jones does not specifically disclose the width of the channels. Since the width of the channels is recognized as a result-effective variable, differences in concentration will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such width is critical or provides unexpected results. Therefore, in the absence of unexpected results, it would have been

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obvious to one having ordinary skill in the art at the time the invention was made to use the core with tensegrity structure wherein the width of the channels is in the range instantly claimed motivated by the desire to provide a core with higher compressive reinforcement while maintaining much greater strength to weight ratios for aerospace applications. This is in line with *In re Aller*, 105 USPQ 233 which holds discovering the optimum or workable ranges involves only routine skill in the art.

Jones as modified by Donomoto does not teach the core comprises an extrusion. However, it is a product-by-process limitation not as yet shown to produce a patentably distinct article. It is the examiner's position that the article of Jones as modified by Donomoto is identical to or only slightly different than the claimed article prepared by the method of the claim, because both articles are formed from the same materials, having structural similarity. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or an obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985). The burden has been shifted to the applicant to show unobvious differences between the claimed product and the prior art product. *In re Marosi*, 218 USPQ 289,291 (Fed. Cir. 1983). It is noted that if the applicant intends to rely on Examples in the

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specification or in a submitted Declaration to show non-obviousness, the applicant should clearly state how the Examples of the present invention are commensurate in scope with the claims and how the Comparative Examples are commensurate in scope with Jones/Donomoto.

8. Claims 3, 8, 9, 12, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones et al. (US 6,630,093) in view of Donomoto et al. (US 4,450,207) as applied to claim 19, further in view of Gunnink (US 4,935,291). Jones does not specifically disclose the metal core formed from aluminum, copper or alloys of aluminum and copper. Gunnink, however, teaches a composite laminate for use as construction material of aircraft wings. The composite laminate comprises a metal core sandwiched between two composite skins. The core is an alloy of aluminum and copper (column 2, lines 35-40). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a core material formed from an alloy of aluminum and copper motivated by the desire to provide the core with sufficient tensile strength for use in aircraft wings.
9. The art rejections based on Jones have been maintained for the following reasons. Applicant contends that Jones fails to teach or suggest the width of the channel as well as the extruded tubular core. That is not true. Jones discloses that the internal geometry patterns can be varied as dependent upon the desired flexibility, stiffness and shear strength of the composite articles with potentially much greater strength to weight ratios. Jones discloses the composite material

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found useful in aerospace applications. Jones does not specifically disclose the width of the channels. Since the width of the channels is recognized as a result-effective variable, differences in concentration will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such width is critical or provides unexpected results. Therefore, in the absence of unexpected results, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the core with tensegrity structure wherein the width of the channels is in the range instantly claimed motivated by the desire to provide a core material with higher compressive reinforcement while maintaining much greater strength to weight ratios for aerospace applications. This is in line with *In re Aller*, 105 USPQ 233 which holds discovering the optimum or workable ranges involves only routine skill in the art.

Jones as modified by Donomoto does not teach the core comprises an extrusion. However, it is a product-by-process limitation not as yet shown to produce a patentably distinct article. It is the examiner's position that the article of Jones as modified by Donomoto is identical to or only slightly different than the claimed article prepared by the method of the claim, because both articles are formed from the same materials, having structural similarity. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the

product-by-process claim is the same as or an obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985). The burden has been shifted to the applicant to show unobvious differences between the claimed product and the prior art product. *In re Marosi*, 218 USPQ 289,291 (Fed. Cir. 1983). It is noted that if the applicant intends to rely on Examples in the specification or in a submitted Declaration to show non-obviousness, the applicant should clearly state how the Examples of the present invention are commensurate in scope with the claims and how the Comparative Examples are commensurate in scope with Jones/Donomoto.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai Vo whose telephone number is (571) 272-1485. The examiner can normally be reached on Monday through Thursday, from 9:00 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Callie Shosho can be reached on (571) 272-1123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public

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PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Hai Vo/
Primary Examiner, Art Unit 1794